The Relationship Between Competition Authorities and Sectoral Regulators

Access Regulation in the Telecommunications Sector

by

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Biographic note

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Abstract

There are several differences between the type of interventions carried out by competition authorities and sectoral regulators and the comparison of their characteristics demonstrates that there are many advantages to each authority, depending on the situation. Thus, it is extremely important to understand the relationship between the two authorities and the consequences of entrusting each of them with certain tasks. The telecommunications sector is a good example of cooperation between competition authorities and sectoral regulators aiming to overcome the existing barriers to competition, with regulation being used as a complement to competition enforcement. Moreover, the study of subjects such as access regulation, and its impact on the levels of investment and innovation, is also very important.

Therefore, the aim of the dissertation is to present the existing theory on the relationship between competition authorities and sectoral regulators, particularly regarding access regulation in the telecommunications sector, through a descriptive research, characterized by a review of the existing literature and a case study of the Telefónica case.

Although the scenario where competition authorities and sectoral regulators are both responsible for competition enforcement is considered the best model by some authors, it is not possible to find a single solution that can be applied to all sectors and countries. The Telefónica case is a very important reference in this study, as it suggests the existence of institutional conflicts between national regulators and the European Commission, particularly between the 1998 regulatory framework and EU competition law.

JEL-codes: K21, K23, L40, L43, L50, L96.

Key-words: Competition Law, Competition Policy, Regulation Policy, Telecommunications, Access Regulation, Telefónica, European Union, Spain.

Resumo

Existem várias diferenças entre o tipo de intervenção levada a cabo pelas autoridades da concorrência e reguladores sectoriais e a comparação das suas características demonstra que existem vantagens associadas a cada uma das autoridades, dependendo da situação. Portanto, é de extrema importância compreender como se relacionam as duas autoridades e as consequências de confiar certas tarefas a cada uma delas (Marques et al., 2005). O setor das telecomunicações é um bom exemplo de cooperação entre as autoridades da concorrência e os reguladores sectoriais, uma vez que neste sector existem, de facto, barreiras à concorrência e a regulação é um complemento necessário à defesa da concorrência.

Assim, o objetivo desta dissertação é apresentar a teoria existente sobre a relação entre autoridades da concorrência e reguladores sectoriais, através de uma pesquisa descritiva, caracterizada por uma revisão de literatura e um estudo do caso Telefónica.

Apesar de uma abordagem onde as autoridades da concorrência e os reguladores sectoriais são ambos responsáveis pela defesa da concorrência ser considerada a melhor opção por alguns autores, não é possível encontrar uma solução única, aplicável a todos os sectores e países. O caso Telefónica é uma referência muito importante neste estudo, uma vez que sugere que podem existir conflitos institucionais entre reguladores nacionais e a Comissão Europeia, especificamente, entre o quadro regulamentar de 1998 e o direito da concorrência da UE.

Códigos-JEL: K21, K23, L40, L43, L50, L96

Palavras-chave: Direito da Concorrência, Política da Concorrência, Política da Regulação, Telecomunicações, Regulação de Acesso, Telefónica, União Europeia, Espanha.

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Introduction

Competition Policy can be defined as a series of laws and policies that ensure that economic welfare is not reduced by restrictions on competition (Motta, 2004), while regulation consists on restrictions to the economic agents' actions, imposed by the state (Stone, 1982) (apud Viscusi et al., 2001).

There are several differences between the type of interventions carried out by competition authorities and sectoral regulators and the relationship between the two authorities has been a subject of study of many authors, such as Marques et al. (2005) and Dabbah (2011), among others.

The telecommunications sector is a good example of competition and regulation working together (Almunia, 2010) to overcome the existing barriers to competition (OECD, 2016), with regulation being used as a complement to competition enforcement (Almunia, 2010). On the other hand, the fact that sectors like telecommunications depend on networks that are costly and difficult to duplicate (OECD, 2016) highlights the importance of studying access regulation and the conditions in which it is set. The matter of access and interconnections between networks is also very important in the telecommunications sector since, for example, the way the access/interconnection price is set will determine the type of pricing competition in the downstream market (Dabbah, 2011) and, because of competition, this sector consists of a multitude of networks or partial networks, owned by many telecommunications services providers (Vogelsang, 2003).

Finally, the Telefónica case (Case COMP/38.784 – Wanadoo España v Telefónica) is a very important reference in the study of the relationship between competition authorities and sectoral regulators in the telecommunications sector, particularly regarding access regulation, as it suggests the existence of "institutional conflicts between the Commission and national regulators" (Hou, 2015, p. 995).

Therefore, the aim of the dissertation is to present the existing theory on the relationship between competition authorities and sectoral regulators, particularly regarding access regulation in the telecommunications sector, and illustrate it through the study of the Telefónica case (COM/38.748, Wanadoo España v. Telefónica).

Given the main goals of the dissertation, this study involves a descriptive research (Saunders et al., 2009) aiming to illustrate the situation of the relationship between competition and regulation in the telecommunications sector, characterized by a review of the existing literature and a case study. The literature review (Saunders et al., 2009) in this dissertation has a broader scope than usual, and consists of a brief description of the history of competition and regulation policy, a comparison between the characteristics of the intervention of the respective authorities and a "description and critical analysis of what other authors have written" (Saunders et al., 2009, p. 65) about the relationship between competition and regulation in the telecommunications sector, particularly regarding access regulation. To illustrate these aspects, the dissertation will also include a case study (Saunders et al., 2009) of the Telefónica case (COM/38.748, Wanadoo España v. Telefónica), due to its uniqueness (Saunders et al., 2009) and importance to this subject.

This work is structured as follows: chapter 1 presents a brief history of competition policy in the US and the EU and the characteristics of competition authorities' intervention; chapter 2 describes briefly the history of regulation in Europe and the US, and presents the most important characteristics of sectoral regulation authorities' intervention; chapter 3 begins with a comparison between these characteristics and the reasoning behind them, and proceeds with an analysis of the relationship between competition authorities and sectoral regulators, particularly in the telecommunications sector, ending with a review on access regulation in the telecommunications sector, complemented by the study of the Telefónica case (Case COMP/38.784 – Wanadoo España v Telefónica); finally, the last section concludes.

Chapter 1. Competition Policy and the Competition Authorities

Competition Policy (commonly referred to as antitrust policy in the US) can be defined as "the set of policies and laws which ensure that competition in the marketplace is not restricted in a way that is detrimental to society" (Motta, 2004, p. 28). This definition can be narrowed if we assume, as Motta (2004) argues in his work, that economic welfare is the competition authorities' main goal and rephrased as "the set of policies and laws which ensure that competition in the marketplace is not restricted in such a way as to reduce economic welfare" (Motta, 2004, p. 28).

In practice, competition authorities' aim is to prevent all collusive practices between undertakings, the abuse of dominant positions in the market and the mergers of undertakings that could represent a significant threat to competition (Motta, 2004).

Concepts like "competition policy", "competition law", and "competition enforcement" are used indiscriminately and as synonyms by many authors, including some mentioned in this study, without a proper justification or previous definition. Nevertheless, some terminological precisions are necessary.

Figure 1 – Three levels of action

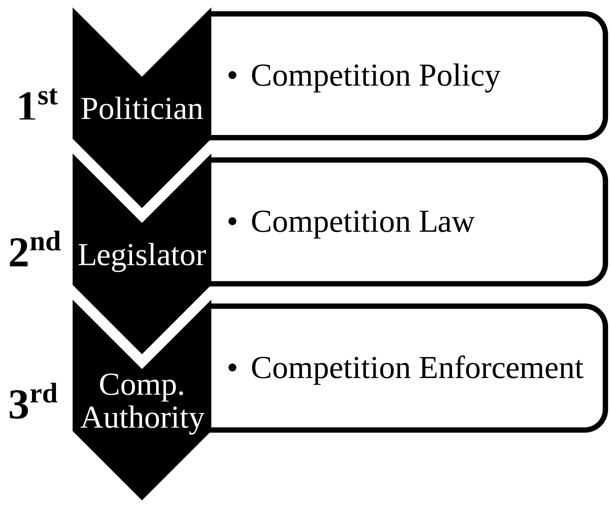

Figure 1 illustrates the three levels of action surrounding competition. The first level, competition policy, concerns the economic policy options (free market, regulation, etc.) that signal the objectives set by the politician regarding competition and are the source of competition rules. At the second level, competition law, the legislator designs and implements the legal framework according to the economic policy options taken by the politician at the first level. Finally, the third level, competition enforcement, represents the application of the laws designed at the second level to the specific reality of each sector by the competition authorities and regulators, including the 'soft law'[1] produced by the European Commission. This level results from an economic analysis of the law (Whish and Bailey, 2015) and, therefore, both economic and legal knowledge is necessary: "competition lawyers must understand economic concepts, and competition economists must understand legal processes (…), each understanding the contribution to be made by the other" (Whish and Bailey, 2015, p. 2). The competition authorities' decisions at this level give signals of what is happening in the reality of each sector, and can trigger legislative changes at the second level (when they reveal that the legal framework is not adjusted to the reality). Moreover, this figure also reveals the importance of studying the interconnection between law and economics, since the decisions made at either level will affect the actions taken at the other levels.

Lastly, as stated above, one of the goals of this work is to study the relationship between competition authorities and sectoral regulators, which means that it is situated at the third level. However, the remaining levels should also be considered, due to this interconnection between the different levels.

1.1 Brief History

The Sherman Act of 1890, which resulted from a consensus between the states to create a federal law that could help solve the conflicts brought by the improvement in transportation, communications, and manufacturing industries, marks the beginning of modern competition policy in the United States (Motta, 2004). The prohibition of collusive practices which restrict trade is established in Section 1 of this act, while Section 2 sets the prohibition of monopolization (Motta, 2004). Many authors refer that the growth of the number of mergers was a consequence of the Sherman Act, which led to the introduction of the Clayton Act of 1914. This Act focuses on the prohibition of mergers that could represent a significant threat to competition and of other practices, such as price discrimination, and has later been amended several times to accommodate the necessary changes (Motta, 2004). In the same year, the Federal Trade Commission

[1] The term 'Soft Law' portrays non-binding notices produced by the European Commission whose goal is to provide orientation to the economic agents on the applicability of 'Council Regulations' and the TFEU.

(FTC) was created through the Federal Trade Commission Act, with the purpose of regulating unfair trade practices in coordination with the Department of Justice (DOJ) (Motta, 2004).

The Treaty of Paris, signed in 1951 between Belgium, France, Germany, Italy, Luxembourg and the Netherlands, signalizes the creation of the European Coal and Steel Community (ECSC) and the starting point in competition law at a supra-national level (Motta, 2004). Similar to the first two sections of the Sherman Act and the Clayton Act in the US, Article 65 of this Treaty sets the prohibition of collusive practices which distort or restrict trade within the Common Market, while the prohibition of abuse of dominant position and of mergers that could represent a significant threat to competition among Member States within the coal and steel industry is established in Article 66(7) (Motta, 2004).

The competition policy regime followed in the European Union consists of two levels of authority, national and supra-national (Motta, 2004). At the national level, each country has its own competition policy and corresponding competition law, produced by national legislative bodies. Furthermore, in the EU countries, there is additional competition law produced by the European institutions (the supra-national level) in accordance with their competition policy decisions, which is applicable when the offense falls on the scope of Community Law.

The "effect on trade criterion is an autonomous, (…) jurisdictional criterion, which defines the scope of application of Community competition law" (Commission Notice 2004/C 101/07, point 12). It states that Articles 101 and 102 of the TFEU "are applicable to horizontal and vertical agreements and practices on the part of undertakings" (Commission Notice 2004/C 101/07, point 1) "that are capable of having a minimum level of cross-border effects within the Community" (Commission Notice 2004/C 101/07, point 13), meaning that "community competition law is not applicable to agreements and practices that are not capable of appreciably affecting trade between Member States" (Commission Notice 2004/C 101/07, point 12). This "criterion also determines the scope of application of Article 3 of Regulation 1/2003 on the implementation of the rules on competition laid down [in Articles 101 and 102 of the TFEU]" (Commission Notice 2004/C 101/07, point 8).

While the European Commission, the Court of First Instance, and the European Court of Justice only have powers to apply Community competition law, national competition authorities and national courts have powers to apply both national and Community competition law. Under Article 3 of Regulation 1/2003, where national competition authorities (and courts) apply national competition law to practices that are also forbidden under Articles 101 or 102 of the TFEU, they shall also apply the corresponding article of the Treaty, if said practice is "capable of appreciably affecting trade between Member States" (Commission Notice 2004/C 101/07, point 12). Nevertheless, "the application of national competition law may not lead to the prohibition of (…) practices which may affect trade between Member States but which do not restrict competition within the meaning of Article [101 of the TFUE] (…), or which fulfil the conditions of Article [101 (3) of the TFEU] (…) or which are covered by a Regulation for the application of Article [101 (3) of the TFEU]" (Article 3 (2) of Regulation 1/2003), although it is still permitted to adopt and apply "stricter national laws which prohibit or sanction unilateral conduct engaged in by undertakings" (Article 3 (2) of Regulation 1/2003). Moreover, "without prejudice to general principles and other provisions of Community law, (…) [these provisions] do not apply when [national competition authorities or national courts] apply national merger control laws or (…) provisions of national law that predominantly pursue an objective different from that pursued by Articles [101 and 102 of the TFEU]" (Article 3 (3) of Regulation 1/2003).

The competition regime concerning undertakings currently prevailing at the supra-national level consists of Articles 101 to 106 of the TFEU and several Council Regulations, including Council Regulation (EC) No 139/2004, regarding merger regulation. The institutions responsible for the competition law enforcement at a supra-national level are the European Commission, the Court of First Instance (for legal actions against the Commission's decisions) and the European Court of Justice (for appeals on the Court of First Instance's judgements) (Motta, 2004). National Competition Authorities and national courts share the same functions at a national level (Motta, 2004), as explained above.

1.2 Characteristics of Competition Authorities' Intervention

According to the OECD (1999), "[competition authorities'] interventions aim to ensure efficiency in the functioning of goods and services markets by preventing or taking action against restrictions on competition (…) [which means they] regard competition as a process" (OECD, 1999, p. 188). To ensure this efficiency, competition "authorities assess conduct after the fact" (Rey, 2002, p. 44), meaning their intervention is mostly ex-post (OECD, 1999; Rey, 2002). However, mergers between undertakings require prior notice (Rey, 2002), thus competition authorities' intervention can also be ex-ante. Other examples of pro-activity in competition policy (OECD, 1999) are the fact that "practices restricting competition are in principle prohibited" (OECD, 1999, p. 188) by law and that "competition authorities can [also] publish guidelines" (Rey, 2002, p. 45) that provide orientation on the applicability of the law (mentioned above as 'soft law').

Although "competition policy is permanent" (OECD, 1999, p. 188), in the sense that the existing laws and regulations are applicable at any time and not only for a limited period, competition authorities' interventions are occasional (Rey, 2002), occurring only "when they receive a complaint or otherwise believe that the competition law has been broken or a merger requires review" (OECD, 1999, p. 26). Besides, even though these authorities "occasionally conduct independent industry studies, (…) the (…) majority of cases" (Rey, 2002, p. 43) arise from complaints (OECD, 1999), proving that private parties are significantly important for competition policy enforcement (Rey, 2002).

Competition authorities "are charged with enforcing a law of general application" (OECD, 1999, p. 28) to all sectors, which evidences they "have a fairly universal mandate" (Rey, 2002, p. 46) and require, therefore, general knowledge in terms of "legal, economic and accounting expertise (…), but [with] relatively less need of accounting expertise" (OECD, 1999, p. 28).

The next chapter describes briefly the history of regulation in Europe and the US, and presents the most important characteristics of sectoral regulation authorities' intervention.

Chapter 2. Regulation and the Sectoral Regulators

Stone (1982) defines regulation as "a state imposed limitation on the discretion that may be exercised by individuals or organizations, which is supported by the threat of sanctions" (Stone, 1982, p. 10) (apud Viscusi et al., 2001, p. 297). These restrictions imposed by governments can be of either economic or social nature. Given the main goal of this work, the focus will be given to economic regulation, as this is the area where conflicts may arise against competition authorities' decisions.

In practice, economic regulation appears most commonly in the form of price control (definition of minimum and/or maximum prices, price cap, amongst others), quantity control and entry/exit controls (Viscusi et al., 2001). The existence of economic regulation in a certain market does not mean, however, that the market forces do not intervene, as the government's incapability of monitoring every agent and regulating every decision leaves room for the action of the market forces (Viscusi et al., 2001).

2.1 Brief History

The decision of the Supreme Court in the case Munn vs. Illinois in 1877 is usually pointed as one of the key events that illustrates the beginning of economic regulation in the United States, and the foundation that led to the regulation of monopolies (Viscusi et al., 2001). The creation of the Interstate Commerce Commission (ICC), whose goal was to regulate the rates in the railroad industry, with the Interstate Commerce Act of 1887 is the second landmark in the history of regulation in the US (Viscusi et al., 2001). The regulation of public utilities like electricity and telephone services and the creation of similar commissions began in the last decades of the 19^{th} century and continued during the first decades of the 20^{th} century, across the whole country (Viscusi et al., 2001). The 1930s brought a wave of economic regulation that lasted until the 1960's, during which several agencies were created, such as the Federal Communications Commission in 1934, and many acts were passed, including the Public Utility Act, in 1935 (Viscusi et al., 2001). On the contrary, we witnessed the beginning of a wave of economic deregulation in several industries during the 1970s, that has continued during the most recent years (Viscusi et al., 2001).

Similarly, Europe also experienced a growth in regulation during the 19th century, "with the emergence of specialist regulatory institutions" (Baldwin et al., 2012, p. 4) and a wave of economic regulation during the 1930's (Baldwin et al., 2012). It was "in the post-war period (…) [that] the first US-style independent regulatory agency was established in Britain in 1954 with the Independent Television Authority" (Baldwin et al., 2012, p. 4), which preceded the creation of several others, during the following decades (Baldwin et al., 2012). The end of the 1980's brought the beginning of a process of economic deregulation in the telecommunications sector, which "has roughly experienced three major reforms" (Hou, 2015, p. 983): first, the elimination of "natural monopolies over telecom services and networks" (Hou, 2015, p. 983) between the end of 1980's to 1998; second, a "transitional period (…) [characterized by a gradual change in] the regulatory regime" (Hou, 2015, p. 983) from 1998 to 2002; and third, "the current regulatory framework, which became effective in 2003 and was mildly amended in 2009" (Hou, 2015, p. 983).

The current EU regulatory framework in the telecommunications sector consists mainly of four directives: Directive 2002/21/EC of the European Parliament and of the Council, of 7 March 2002, on a common regulatory framework for electronic communications networks and services (Framework Directive); Directive 2002/20/EC of the European Parliament and of the Council, of 7 March 2002, on the authorisation of electronic communications networks and services (Authorisation Directive); Directive 2002/19/EC of the European Parliament and of the Council, of 7 March 2002, on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive); and Directive 2002/22/EC of the European Parliament and of the Council, of 7 March 2002, on universal service and users' rights relating to electronic communications networks and services (Universal Service Directive) (Hou, 2015). In 2009, the first three directives were amended by the Directive 2009/140/EC of the European Parliament and of the Council, of 25 November 2009, and the Universal Service Directive by the Directive 2009/136/EC of the European Parliament and of the Council, of 25 November 2009 (Hou, 2015).

However, "the EU does not have exclusive competence over telecom regulation, and most regulatory measures are left to the discretion of Member States (…) [, raising] a concern that the implementation of telecom regulation could be fragmented across EU countries" (Hou, 2015, p. 984). In response to these concerns, "the current regulatory framework establishes (…) the so-called Article 7 [of the Framework Directive] Procedure (…) [,] a mechanism for information exchange and consultation between national regulators and the Commission, (…) [which] also involves competition authorities at two levels" (Hou, 2015, pp. 984-985). While at the national level, regulators are required to consult and take into consideration the national competition authorities' opinions (Hou, 2015), at the supra-national level, "national regulators need to notify the Commission of their draft regulatory measures" (Hou, 2015, p. 985), which can be review and vetoed by the Commission, "also acting on its antitrust competence, (…) if they are incompatible with telecom regulation and EU competition law" (Hou, 2015, p. 985).

2.2 Characteristics of Sectoral Regulation Authorities' Intervention

As we have seen before, sectoral regulation authorities' intervention appears most commonly in the form of price, quantity or entry/exit controls (Viscusi et al., 2001), and even though the market forces may intervene in a certain market (Viscusi et al., 2001), these "specific regulations [work, to a certain extent, as a] substitute for market forces" (OECD, 1999, p. 188) and are "needed to achieve acceptable performances" (OECD, 1999, p. 188). Therefore, most regulation authorities' interventions "are meant to be temporary" (OECD, 1999, p. 188), unless the market failure they aim to correct is of structural nature (Marques et al., 2005).

Given the specificities of these interventions, "sector-specific regulators typically intervene (…) frequently and require a continual flow of information from regulated entities" (OECD, 1999, p. 9), which includes, among other practices, "monitor[ing] the firms' accounts on a continuous basis" (Rey, 2002, p. 46). This also means that these authorities' interventions are usually ex-ante (OECD, 1999; Rey, 2002) and rely on "sector specific knowledge and skills" (OECD, 1999, p. 188) and "legal, economic and accounting expertise, with the accent probably on accounting" (OECD, 1999, p. 28)".

Finally, sectoral regulation authorities "are usually involved in a long-term relationship with regulated" (Rey, 2002, p. 46) entities, demonstrating "that "regulatory capture" remains a real problem" (OECD, 1999, p. 28).

Chapter 3 - The Relationship Between Competition Authorities and Sectoral Regulators

3.1 Comparison Between the Characteristics of Competition and Sectoral Authorities' Intervention

The previous chapters have shown the most important characteristics of competition and sectoral authorities' intervention. This chapter begins with a comparison between these characteristics and the reasoning behind them, which is summed up in Table 1, and proceeds with an analysis of the relationship between competition authorities and sectoral regulators, particularly in the telecommunications sector. The chapter ends with a review on access regulation in the telecommunications sector, complemented by the study of the Telefónica case (Case COMP/38.784 – Wanadoo España v Telefónica).

Table 1 – Comparison Between the Characteristics of Competition and Sectoral Authorities' Intervention

Competition Authorities' Intervention	Sectoral Authorities' Intervention
Intervention only needed if competition is restricted	Intervention needed to achieve acceptable performances
Competition as a process	Substituting market forces
Less likely to trade off conflicting goals	More likely to trade off conflicting goals
Ex post (except merger control)	Ex ante
Low capture risks	High capture risks
Private parties play an important role as a trigger	Private parties play an important role as information providers
General knowledge and law	Specialized knowledge and rules
Legal and Economic expertise more relevant	Accounting expertise more relevant
Permanent	Temporary or permanent, depending on the circumstances
Occasional	Frequent and Continuous

Sources: OECD (1999); Rey (2002); Marques et al. (2005).

Table 1 summarises the comparison between the characteristics of competition and sectoral authorities' intervention. As we have seen in the previous sections, there are several differences between the type of intervention carried out by each of these authorities.

Competition authorities "take action against restrictions on competition" (OECD, 1999, p. 188), whereas sectoral regulators' "intervention [is] needed to achieve acceptable performances" (OECD, 1999, p. 188), which means that, while competition authorities "regard competition as a process, [sectoral regulators intervene as a] substitute for market forces" (OECD, 1999, p. 188). Contrary to what happens with competition authorities, sectoral regulators usually seek to achieve a "considerably broader range of goals" (OECD, 1999, p. 9), motivated by the "desire to correct for various market failures (besides the existence of market power)" (OECD, 1999, p. 25). Therefore, they may not only "become more adept at trading off conflicting goals" (OECD, 1999, p. 9) but, most importantly, "tolerate or encourage anticompetitive market structures as where cross-subsidies are believed necessary to ensure universal service obligations are met" (OECD, 1999, p. 25). This is a critical point, as it can be the source of conflicts between the two authorities.

Another difference between the two types of intervention is that, while competition authorities intervene mostly ex-post (except when it comes to mergers between undertakings, which require prior notice), sectoral regulators intervene mostly ex-ante (OECD, 1999; Rey, 2002). There are several advantages of ex-ante intervention: it is less uncertain than ex-post intervention in the firms' perspective (even if there is still uncertainty about its consequences) (Rey, 2002), since there is a greater level of commitment of the regulator towards the regulated entities (Rey, 2002), and these entities are also more likely to disclose more information than in the case of ex-post intervention (Rey, 2002). The commitment of the sectoral regulators to their decisions allows them to be more demanding towards the regulated entities by exploiting these entities' demonstrated efficiency and investments (Rey, 2002) but it also provides some security to the entities when thinking about new investment opportunities, as they "may be better served through ex-ante instructions rather than by being surprised with unexpected requirements once sunk cost investments have been made" (OECD, 1999, p. 26). This could also benefit consumers "if consequent lower costs of capital are passed on in the form of reduced prices or better products" (OECD, 1999, p. 26). Regulated entities will also be more likely to disclose more information in the case of ex-ante intervention, given that "it is less risky for the firm to conceal or manipulate information ex-post when it knows the state of nature than ex ante when it does not" (Rey, 2002, p. 45). But there are also several disadvantages of ex-ante intervention: decisions need to be made more rapidly, which adds pressure to regulators (Rey, 2002); contrary to ex-post intervention, it does not allow regulators to resort to new information obtained posteriorly or, even when ex-ante rules are flexible enough to allow posterior adjustments, the benefit brought by this flexibility does not make up for the difficulty of designing such rules, as opposed to defining ex-post rules in the first place (Rey, 2002); and, ex-ante intervention can promote collusion between the regulator and the regulated industry (Rey, 2002), increasing the risks of capture (OECD, 1999; Rey, 2002).

The increase in the risk of capture is due, among other factors, to the long-term nature of the relationship between regulator and regulated entities (Rey, 2002) and their "higher degree of ongoing interdependence" (OECD, 1999, p. 28), which can lead the regulator to start "to share the industry's perspective (…) [including] its fear of fostering greater competition" (OECD, 1999, p. 28), which can also be a source of conflict between sectoral regulators and competition authorities. Competition authorities are usually considered more independent than sectoral regulators (Rey, 2002), although if they are positioned within a ministry, there is a bigger chance of them being influenced by politics than independent regulators (Rey, 2002). Independent authorities have many benefits, such as more transparency (Rey, 2002), less vulnerability to lobbying (even if there is still a risk of their officers being bribed) (Rey, 2002) and a bigger chance of offering a fair treatment to all market players (Rey, 2002). However, they are also more likely to follow their own interests rather than the nation's interests, which is usually pointed out as the cost of independence (Rey, 2002). Hence, to reduce the risk of capture and the social costs of collusion (Rey, 2002) between regulator and regulated entities, regulatory decisions should be less discretionary and more bureaucratized over time (Rey, 2002), with full transparency (Rey, 2002), and involve a bigger participation of private parties in the process (Rey, 2002).

The participation of private parties in each type of intervention can come in different forms. In the case of competition policy, private parties play an important role as a trigger, since, even though these authorities “occasionally conduct independent industry studies, (…) the (…) majority of cases” (Rey, 2002, p. 43) arise from complaints (OECD, 1999), although private parties still play a big role as information providers when an investigation is, in fact, carried out by competition authorities. An example of this triggering action is the leniency policy [2], a very important instrument in cartel investigation. When it comes to regulation, private parties play a bigger role as information providers, as the regulatory process “requires[s] a continual flow of information from regulated entities” (OECD, 1999, p. 9), for example, regarding costs.

The type of knowledge and rules followed by these two authorities can also differ. While competition authorities rely on general knowledge and law, since they “apply (…) general rules to the economy, as a whole” (OECD, 1999, p. 189), sectoral regulators depend mostly on specialized knowledge and rules (OECD, 1999), since they concentrate “on a specific industry” (Rey, 2002, p. 46), which allows them to easily “cope with (technically) complicated specific problems” (OECD, 1999, p. 188). This is also one of the reasons why “the risk of ‘capture’ seems to be smaller for a general competition authority than for a sector specific regulator” (OECD, 1999, p. 189). Moreover, the lack of specialized knowledge by the competition authorities also shows why it is more difficult for them to deal with cases that demand mostly quantitative evidence, such as predatory pricing, access pricing or tacit cartels, than those relying on qualitative evidence, such as price fixing or price discrimination (Rey, 2002). But there are also situations where competition authorities create specific, ex-ante rules (OECD, 1999), such as the rules for mergers between undertakings, which require prior notice (Rey, 2002), and guidelines (Rey, 2002) which provide orientation on the applicability of the law, also known as soft law. Although specialized knowledge has the advantage of allowing a “better informed decision making” (Rey, 2002, p. 46), it also presents two main disadvantages, namely, the “ratchet effect” (Rey, 2002) and, as mentioned above, the bigger risk of capture (Rey, 2002). The “ratchet effect” describes the situation, within the Principal-Agent model, where “if an agent works hard and shows a good result, the principal may demand even better results in the future; anticipating this, the agent has little incentive to work hard in

[2] The leniency policy is one of the instruments available to the European Commission in cartel investigation. It allows companies that participate in cartels to obtain either immunity or a reduction of the fines, if they cooperate with the Commission (by self-reporting and presenting additional evidence) and meet the corresponding requirements (Commission Notice 2006/C 298/11).

the first place" (The Royal Swedish Academy of Sciences, 2014, p. 14). In the regulatory context, this implies that "the firm will be reluctant to reveal that its costs are low, fearing" (The Royal Swedish Academy of Sciences, 2014, p. 15) that the regulator would be more demanding in the future, which could compromise efficiency (Rey, 2002). This effect is also sometimes pointed out as a constraint on the firms' incentives to innovate (Rey, 2002).

The type and variety of information (OECD, 1999) that each authority requires also depends on the kind of intervention carried out, with "regulators (…) typically need[ing] a greater variety of information than competition [authorities]" (OECD, 1999, p. 26). The expertise required by both authorities can be divided into three categories (legal, economic and accounting) and, while sectoral regulators rely more on accounting expertise, competition authorities put the accent on legal and economic skills (OECD, 1999). Accounting expertise is much needed by sectoral authorities when "regulating entry and lines of business, setting prices, ensuring appropriate levels of product quality, and policing universal service obligations" (OECD, 1999, p. 28), but it is also required by competition authorities when dealing with predatory pricing (OECD, 1999). Legal skills are especially important for competition authorities when "conducting case specific investigations" (OECD, 1999, p. 28) and economic expertise regarding "market definition, determining whether a firm is dominant, and estimating the anticompetitive potential of a particular practice or merger" (OECD, 1999, p. 28), although both types of expertise are also important for sectoral authorities in the interventions mentioned above (OECD, 1999).

On the one hand, "competition policy is permanent" (OECD, 1999, p. 188), in the sense that the existing laws and regulations are applicable at any time and not only for a limited period. On the other hand, most regulation authorities' interventions "are meant to be temporary, to engineer competition" (OECD, 1999, p. 188), unless the market failure they aim to correct is of structural nature, in which case they will also be permanent (Marques et al., 2005).

Finally, competition authorities' interventions are occasional (Rey, 2002), occurring only "when they receive a complaint or otherwise believe that the competition law has been broken or a merger requires review" (OECD, 1999, p. 26). On the contrary, "sector-specific regulators typically intervene (…) frequently and require a continual flow of information from regulated entities" (OECD, 1999, p. 9), which includes, among other practices, "monitor[ing] the firms' accounts on a continuous basis" (Rey, 2002, p. 46).

3.2 Models of Relationship Between Competition Authorities and Sectoral Regulators

The comparison of the characteristics of competition authorities and sectoral regulators' interventions described in the previous section demonstrates that there are several advantages to each authority, depending on the circumstances.

Carlton and Picker (2014) show that "this recent history highlights a move away from regulation toward antitrust (…) to control competition" (Carlton and Picker, 2014, p. 43) and explain that the relationship between regulation and competition policy (or antitrust) can be one of substitution, which "involves the complete replacement of regulation with antitrust, as occurs when industries become deregulated" (Carlton and Picker, 2014, p. 43), or complementarity, when competition policy controls the unregulated segments of a partially deregulated industry "while regulation controls the rest" (Carlton and Picker, 2014, p. 43) and "the assignment of tasks to antitrust versus regulation is key" (Carlton and Picker, 2014, p. 43), or when competition policy is used "as a constraint on how regulation is implemented (…) [, for example,] through a double filter or double–veto process" (Carlton and Picker, 2014, p. 44).

Dabbah (2011) recalls that overlap in the approaches underlying competition law and sectoral regulation can easily occur, in areas such as, for example, "market definition and assessing market power" (Dabbah, 2011, p. 115), "pricing, (…), licensing, (…) [and] with the issue of remedies" (Dabbah, 2011, p. 116). The author explains that market definition and assessing market power are important to determine not only whether there is a competition problem, which falls within the scope of competition law (Dabbah, 2011), but also "a multitude of matters, for example which operator in a sector such as telecommunications must offer interconnection" (Dabbah, 2011, p. 116), which falls within the scope of sectoral regulation. Furthermore, the decisions made under sectoral regulation will have an impact on competition. For example, the way the access/interconnection price is set will determine the type of pricing competition in the downstream market (Dabbah, 2011) and "the volume of licences offered (…) and the conditions under which they operate will have an impact on the level and scope of

competition which will emerge" (Dabbah, 2011, p. 116). Besides, "technical, economic and access regulation can also be said to share some common goals with competition law, most notably the goal of consumer welfare and protection" (Dabbah, 2011, p. 116).
Therefore, it is extremely important to understand the relationship between competition authorities and sectoral regulators and the consequences of entrusting each of them with certain tasks (Marques et al., 2005).
Authors like Marques et al. (2005) or Dabbah (2011), among others, have studied the relationship between competition authorities and sectoral regulators and, particularly, the advantages and disadvantages of assigning tasks like economic regulation and competition enforcement to each of them.
Marques et al. (2005) design four models where the tasks of economic regulation and competition enforcement are assigned either to a sectoral regulator or to the competition authority, being that technical regulation[3] is always assigned to the sectoral regulator (Marques et al., 2005) and there are other possible model designs not considered in this list (Marques et al., 2005). Table 2 sums up the characteristics of each model.

Table 2 – Models of Relationship Between Competition Authorities and Sectoral Regulators – Marques et al. (2005)

	Economic Regulation	**Competition Enforcement**
Model 1	Sectoral Regulator	Sectoral Regulator
Model 2	Sectoral Regulator	Competition Authority
Model 3	Sectoral Regulator / Competition Authority	Competition Authority / Sectoral Regulator
Model 4	Competition Authority	Competition Authority

Source: Marques et al. (2005), p. 28 (adapted).

In the case of Model 1 and Model 4, the tasks of economic regulation and competition enforcement are both assigned to only one of the authorities, which has the advantage of consistency between competition promotion and its enforcement (Marques et al., 2005).

[3] Technical regulation "means technical specifications and other requirements or rules on services, (…) as well as laws, regulations or administrative provisions of Member States" (Article 1 (1)(f) of Directive (EU) 2015/1535) and concerns matters like quality, safety and environmental issues, and privacy protection (Marques et al., 2005), among others.

However, in Model 1, the sectoral regulators may lack the necessary skills to apply competition rules (Marques et al., 2005) and, in Model 4, the competition authorities may lack the necessary skills to apply sectoral regulation rules (Marques et al., 2005). Moreover, in Model 4, it cannot be expected that the competition authority fixes a price, as that is not compatible with its competition enforcement objectives (Marques et al., 2005), and, in Model 1, the range of competences attributed to the sectoral regulators is too wide and some of them may even be withdrawn in the future (Marques et al., 2005). A third disadvantage of Model 1 is that, since economic regulation is attributed to the sectoral regulator, there is a bigger risk of capture (Marques et al., 2005), when compared to Models 3 and 4. Considering that, similarly to Model 1, the sectoral regulator is also in charge of economic regulation in Model 2, that disadvantage is also observed in this model (Marques et al., 2005).

In the case of Model 2, each task is assigned to a different authority, which may lead to an incompatibility between economic regulation and competition enforcement (Marques et al., 2005). On the other hand, when compared to Model 1, Models 2, 3 and 4 have the advantage of restricting sectoral regulators' actions (Marques et al., 2005).

Finally, in Model 3, sectoral regulators and competition authorities are assigned to work together in both tasks, although the final decision is a responsibility of sectoral regulators, in the case of economic regulation, and of competition authorities, in the case of competition enforcement (Marques et al., 2005). The characteristics of each of the authorities hamper the cooperation necessary to this type of relationships (Marques et al., 2005) and, in the case of a conflict, there is a need to decide which of the authorities prevails, either through an arbitration process or a prior agreement (Marques et al., 2005) and, when mandatory consultation is imposed, it is necessary to understand whether the advice given is binding (Marques et al., 2005).

Besides, there is a risk that the regulatory process will be more bureaucratic, which reduces efficiency (Marques et al., 2005). But there are also advantages to these relationships. Since they have specialized knowledge in their respective areas, cooperation allows them to take advantage of this knowledge (Marques et al., 2005) and reach better informed decisions. Cooperation also allows to prevent inconsistencies (Marques et al., 2005) between economic regulation and competition enforcement.

The authors conclude that it is not possible to find a single solution that can be applied to all sectors and countries (Marques et al., 2005) and the established models will be different from country to country and even from sector to sector within the same country (Marques et al., 2005), considering not only the relative advantages of each authority (Marques et al., 2005) but also the characteristics of the country and the sector in question (Marques et al., 2005).

Table 3 – Models of Relationship Between Competition Authorities and Sectoral Regulators – Dabbah (2011)

	Description	Table 2
Option A	The *exclusive allocation* of competition enforcement in specific sectors to sector regulators *in addition* to technical, economic and access regulation.	Model 1
Option B	The *coordination* of competition enforcement between the sector regulators (who also enforce technical, economic and access regulation) and the competition authority.	Intermediate model between Model 2 and Model 3 [4]
Option C	The *allocation* of economic regulation and access regulation – in addition to competition enforcement – to competition authorities with technical regulation (perhaps with significant aspects of economic regulation) being handled by sector regulators.	Model 4
Option D	The *allocation* of competition enforcement *and* access, economic and technical regulation to competition authorities.	Model 4 (modified)[5]
Option E	The *exclusive allocation* of competition enforcement in the sectors to competition authorities with technical, economic and access regulations being given to sector regulator.	Model 2
Option F	The allocation of competition enforcement in the sectors in a *concurrent* manner to competition authorities and sector regulators with the latter also performing technical, economic and access regulation.	Model 3 (modified)[6]

Source: Dabbah (2011), pp. 116-117 (adapted).

[4] Marques et al. (2005).
[5] While in Model 4, technical regulation is assigned to the sectoral regulator (Marques et al., 2005), in Option D, technical regulation is assigned to the competition authority.
[6] While in Model 3, both economic regulation and competition enforcement are assigned to both authorities, in Option F, concurrency only happens in the case of competition enforcement.

Dabbah (2011) focuses on "the most challenging question concerning" (Dabbah, 2011, p. 114) the relationship between competition authorities and sector regulators: "how to manage the interface between competition law and sectoral regulation" (Dabbah, 2011, p. 114). The author designs six "different "options" for regulating the sectors and for determining the parameters in the relationship between competition authorities and sector regulators" (Dabbah, 2011, p. 116), although "this list of options is [also] not exhaustive and one can (perhaps unnecessarily) be creative here" (Dabbah, 2011, p. 117). Table 3 summarizes the options designed by Dabbah (2011), through a brief description (column "Description") and their matching to the models designed by Marques et al. (2005) presented in Table 2 (column "Table 2").

Dabbah (2011) states that a perfect model for "determining what the parameters in the relationship between competition authorities and sectoral regulators should be" (Dabbah, 2011, p. 117) cannot be invented using exact science, since they depend on several factors, such as "experience and practical application; (…) the institutional culture prevailing in the relevant country; the type and goals of the relevant competition law regime; and (…) the choices made by politicians and policy-makers in the country concerned" (Dabbah, 2011, p. 117). The author adds that the role of competition authorities in the different sectors is central in managing this interface and, therefore, considers the exclusivity of competition authorities in handling competition enforcement "as first, ultimate and best, scenario" (Dabbah, 2011, p. 118) and, "as a second-best scenario, (…) that competition authorities should handle competition enforcement in the sectors in concurrent manner with sector regulators" (Dabbah, 2011, p. 118).

Dabbah (2011) lists several advantages of the first-best scenario that were also mentioned by Marques et al. (2005), and expands this list with other possible gains from the adoption of this perspective. First, "the independence of competition authorities (…) reduces the risk of capture" (Dabbah, 2011, p. 118). Second, by promoting competition through the action of competition authorities, specialists in competition law, the likelihood of unnecessary sector regulators will be minimized (Dabbah, 2011) and "consistency in competition enforcement across all sectors of the economy" (Dabbah, 2011, p. 118) will be achieved. Besides, competition authorities are able to consider an economy-wide perspective (Dabbah, 2011), which can be an advantage too. The author also mentions that, by minimizing the duplication of work regarding competition enforcement, there are possible savings in administrative time and costs (Dabbah, 2011), and that, contrary to what usually happens in sectoral regulation, competition authorities are able to use a "rule of reason" approach (Dabbah, 2011) by comparing the pro-competitive and the anticompetitive effects of a certain practice before deciding whether it should be considered unlawful (Dabbah, 2011).

But there are also disadvantages to the first-best model, such as the lack of specific technical knowledge by the competition authorities in the relevant sectors (Dabbah, 2011), mentioned by Marques et al. (2005) as well, and of a corresponding specialised mechanism for settling "disputes between market players which can easily arise in the sectors" (Dabbah, 2011, p. 119), which could increase "the risk of a competition authority becoming embroiled in overly detailed and complex regulatory issues which do not have a sufficient link to competition" (Dabbah, 2011, p. 119). In addition, the author states that it is common for competition enforcement procedures to be long (Dabbah, 2011), another disadvantage of this model. Therefore, the author concludes that "the best scenario is not a perfect one" (Dabbah, 2011, p. 119).

The opposite scenario, "exclusively allocating competition enforcement to sector regulators" (Dabbah, 2011, p. 119), cannot be considered viable due to serious intrinsic shortcomings, "which cast serious doubts over the prospects of reaching the ultimate destination of reliance upon the market mechanism and reduced regulation in the sectors" (Dabbah, 2011, p. 119). However, when sectoral regulators are involved in competition enforcement, their "integrated approach of technical, economic, access regulation and competition enforcement" (Dabbah, 2011, p. 120) enables them "to develop a broad and comprehensive perspective on how best to regulate the sectors" (Dabbah, 2011, p. 120), which can be considered an important advantage (Dabbah, 2011). But attributing competition enforcement exclusively to sectoral regulators is not necessary to enjoy this advantage (Dabbah, 2011). In fact, "the effect of these advantages can be considerably enhanced with competition authorities having an involvement in competition enforcement in the sectors alongside sector regulators" (Dabbah, 2011, p. 121). The concurrency model is, therefore, considered the second-best scenario (Dabbah, 2011), since it "maximises the advantages enjoyed by competition authorities and sector regulators and at the same time addresses the different disadvantages from which they suffer" (Dabbah, 2011, p. 121).

Dabbah (2011) explains that concurrency allows competition authorities to perform many competition enforcement tasks, such as, for example, establishing important precedents and practices in the use of competition law analysis and procedures by sectoral regulators (Dabbah, 2011), playing an influential role in defending the "inaction" of sectoral regulators, especially when there is some degree of competition in the relevant sector (Dabbah, 2011) and promoting "the adoption of a pro-competition approach by sector regulators even where the sector regulators' statutory duties do not include the promotion of competition in their sectors" (Dabbah, 2011, p. 123). This can be translated, for example, into the "promotion of competition by pushing for the removal of unnecessary regulation" (Dabbah, 2011, p. 123).

Concurrency also allows competition authorities to guide policy and decision-makers (Dabbah, 2011) in the design of the legislative framework in which the sectoral regulators operate, by pushing for pro-competition legislative changes or to ensure that competition enforcement is considered when new legislation (or amendments to existing legislation) is proposed (Dabbah, 2011). Besides, competition authorities can more easily assess the existing level of competition and the necessity for continued regulation of a certain sector when they are actively involved in said sector (Dabbah, 2011). Additionally, competition authorities can have an important role in supervising "whether competition law is being applied consistently across the board in the sectors and the performance of sector regulators in terms of their adherence to principles of good regulation" (Dabbah, 2011, p. 124).

Dabbah (2011) also states that there are some challenges underlying concurrency, namely: duplication of work due to a lack of adequate coordination between the two authorities (Dabbah, 2011); "the role of non-competition considerations and differences in approach" (Dabbah, 2011, p. 126), for example, regarding market definition (Dabbah, 2011), which can hinder the building of proper economic analysis expertise in the long term (Dabbah, 2011) and cause a "likely reduction of legal certainty enjoyed by operators in the sectors" (Dabbah, 2011, p. 128); and the occurrence of forum shopping (Dabbah, 2011), as "firms may play the competition authority and the sector regulator(s) against one another" (Dabbah, 2011, p. 128). However, there may be advantages to presenting the firms with a choice of authorities, "especially where they feel that a sector regulator is unable to give sufficient attention to the importance of facilitating and maintaining effective competition, (…) [and] the competition authority is better placed and equipped to deal with the matter at hand" (Dabbah, 2011, pp. 128-129). Regarding the second difficulty, the author also explains that "it is important not to make overly general statements, which may convey a not-fully-accurate impression that all sector regulators rely upon regulatory convenience when defining the relevant market in actual cases" (Dabbah, 2011, p. 128) since, in some cases, sectoral regulators "have engaged in a market definition exercise (…) along the lines seen in the practice of many competition authorities" (Dabbah, 2011, p. 128).

Finally, the author specifies that it is possible to overcome these difficulties by ensuring "proper coordination between the competition authority and the sector regulator(s)" (Dabbah, 2011, p. 129) and describes six models[7] that are present around the world and should be noted: the common forum model; the cross-membership model; the intervention, representation and consultation model; the customary "best practices" model; the dis-application model; and the immunity model (Dabbah, 2011).

Therefore, Dabbah (2011) concludes that "out of the different options available, concurrency stands out as a very practical and pragmatic approach to managing the interface between competition enforcement and sectoral regulation" (Dabbah, 2011, p. 141), choosing it "as the best model" (Dabbah, 2011, p. 141). Still, several aspects need to be considered when concurrency is the model chosen, such as, for example, "the wider institutional culture prevailing in the country concerned in relation to addressing economic and noneconomic issues; the vision held by the government of the country concerned on the deregulation question in the sectors and the role the government or a minister may play in sectoral regulation; and, finally, the particular competition law regime in the country" (Dabbah, 2011, p. 141) and the competition policy goals at the national level (Dabbah, 2011).

In conclusion, the differences in the characteristics of these authorities and "the existence of [both] overlap and common goals between competition law and sectoral regulation means that the picture in practice is complex" (Dabbah, 2011, p. 116) and the comparative advantage of each of them is crucial for boundaries definition (Carlton and Picker, 2014). The recognition of these comparative advantages has led to a "partial and full

[7] For further information on the characteristics of these models and examples of their application, consult Dabbah (2011).

deregulation movement" (Carlton and Picker, 2014, p. 58), although "this does not (…) mean that all regulation should vanish, especially for industries with natural monopoly characteristics, but rather that, when necessary, regulation should try to allow as much competition as possible, constrained only by (…) [competition] law" (Carlton and Picker, 2014, p. 26). This also means that it is unlikely that a solution applied to all sectors and countries can be found (Marques et al., 2005) and "it is possible that in one and the same country different options may be followed in different sectors" (Dabbah, 2011, p. 115) "as opposed to one single approach for all sectors" (Dabbah, 2011, p. 132). Besides, these options are unlikely to be static (Marques et al., 2005), since they depend, among other factors, on the level of effective competition in the sector concerned (Marques et al., 2005).

3.2.1 The Telecommunications Sector in the European Union – Institutional Characteristics

In the European Union, national sectoral regulators (or national regulatory agencies – NRA) oversee the domestic regulatory framework in their respective sector, while the European Commission, as the supra-national competition authority, "investigates and decides on restrictions of competition in all sectors, including telecommunications" (DGCEC, 2005, p. 33), when the offense falls on the scope of Community Law, as explained in section 1.1. Under the current regulatory framework for electronic communications mentioned in section 2.1, "the European Commission has (…) [also] been given a role in the adoption of national-level regulations in the Member States, including, in certain cases, veto powers over proposed regulatory interventions" (DGCEC, 2005, p. 33). It is also important to emphasize the financial and political independence of the European Commission towards the Member-States' national governments (DGCEC, 2005), although the DGCEC "cannot comment on the level of autonomy of NRAs" (DGCEC, 2005, p. 34).

The four directives mentioned in section 2.1 lay down the relationship between the European Commission and national sectoral regulators (DGCEC, 2005) and "the new regulatory framework aims to make the two kinds of intervention complementary" (DGCEC, 2005, p. 34), since they both deal with the same problem ("high levels of market power and the likelihood of it being abused" (DGCEC, 2005, p. 37)) and try to achieve the same goal ("putting the end user at the centre of any economic activity" (DGCEC, 2005, p. 37)). Besides, "regulation has been increasingly determined by a competition policy perspective" (DGCEC, 2005, p. 36). The Framework directive, for example, requires national sectoral regulators "to carry out market analyses to establish the state of competition in relevant communications markets and identify any providers with Significant Market Power (SMP) in these markets" (DGCEC, 2005, p. 35) and, when they consider that an operator has SMP, they must "identify which specific obligations are appropriate to impose on that operator" (DGCEC, 2005, p. 35), that will be determined "according to the nature and the source of the competition problem, which, combined with the wealth of possible remedies to be used, allows for a high degree of tailoring to specific circumstances" (DGCEC, 2005, p. 35). On the other hand, the Universal Service Directive outlines "a minimum set of services of specified quality to which all end-users must have access, at an affordable price (…) [and] also contains certain provisions on the financing of universal services" (DGCEC, 2005, p. 36). Therefore, each Member-state and its national sectoral regulators must ensure the implementation of this directive within their territory by, among other things, "imposing universal service obligations on undertakings and monitoring the respect of such obligations" (DGCEC, 2005, p. 36), while the European Commission monitors the correct implementation of this directive by the Member States and "ensures that the provision and financing of universal services does not distort competition" (DGCEC, 2005, p. 36). DGCEC (2005) also emphasises that "the new regulatory framework also covers relations between the various national sectoral regulators in the Member States, by creating a "European Regulators Group" (…) [, which] has met several times, and has agreed, for example, on competition remedies to be used in the field of electronic communications" (DGCEC, 2005, p. 36).

Therefore, DGCEC (2005) concludes that "regulatory policy cannot be seen any more as independent of competition policy (…) [but] as a part of a broader set of tools of intervention in the economy based on competition principles of analysis" (DGCEC, 2005, p. 37) and "the term 'sector-specific regulation' (…) could become obsolete" since it is expected that, in the future, the same set of tools and approaches will manage every sector where economic regulation is still deemed as necessary (DGCEC, 2005). In this sense, the European Commission believes that the model of relationship between competition authorities and sectoral regulators in the electronic communications sector could become an example to be followed by other sectors (DGCEC, 2005).

3.2.2 The Telecommunications Sector in Portugal – Institutional Characteristics

The Portuguese Competition Authority (*Autoridade da Concorrência* – AdC) was created (and the respective statutes approved) on 18 January 2003, through the Decree-Law no. 10/2003. On 26 September 2003, the AdC celebrated a cooperation agreement with ANACOM (*Autoridade Nacional de Comunicações*), the Portuguese telecommunications sector regulator, with the goal of facilitating the cooperation between the two authorities, "avoiding the duplication of work and ensuring the coherence between the decisions or measures taken" (ANACOM, 2003, Introduction). Clause 3 of this agreement establishes that the parties agree to provide the information in their possession whenever the other party requests so in writing, if the request is considered reasonable, while Clause 4 states that the parties must consult each other when they acknowledge they are both analysing the same situation, to decide who should have the powers to adopt the final decision, while "the other party (…) refrain[s] from any subsequent intervention other than replying within a consultation procedure" (ANACOM, 2003, Introduction). The statutes of ANACOM currently prevailing were approved on 16 March 2015, through the Decree-Law no. 39/2015.

Article 5 (4) of the Law No 19/2012, the current Portuguese competition act, predicts the possibility for sectoral regulators and the Portuguese competition authority to celebrate cooperation agreements, such as the one described above. Moreover, Articles 35 and 55 of the same law establish an outline of how the articulation between the competition authority and the sectoral regulators should occur, namely on prohibited practices and control of concentrations.

3.2.3 The Telecommunications Sector in Spain – Institutional Characteristics

The Spanish telecommunications sector regulator, *Comisión del Mercado de las Telecomunicaciones* (CMT), was created in 1996 and the Spanish competition authority, *Comisión Nacional de la Competencia* (CNC), was created in 2007 (CNMC, 2017).

In 2013, the national competition authority and six sectoral regulators (CMT, in the telecommunications sector; CNE, in the energy sector; CRF, in the railway sector;

CEMA, in the audio-visual media sector; CNSP, in the postal service sector; and CREA, in the airport sector) were unified into a single authority, the CNMC (*Comisión Nacional de los Mercados y la Competencia*), to avoid duplication of work and contradictory decisions, through an integrative vision (CNMC, 2017).

Before the formal unification "an initial draft Act creating the CNMC (…) [had] been unofficially circulating on the internet and (…) submitted to the affected bodies for their reports" (Allendesalazar, 2012, p. 103). This draft, which was highly criticized (Allendesalazar, 2012), stated the unification of the seven authorities listed above and the extinction of the regulator of gambling activities and services (Allendesalazar, 2012). In practice, this merger would mainly affect the CNC, the CNE, the CMT and the postal regulator, since most regulatory agencies "had been created recently and had not effectively initiated their activities" (Allendesalazar, 2012, p. 103). On the other hand, "the Central Bank, the Stock Exchange and the nuclear energy regulator (…) [would] remain independent (…) [and] others such as the NRA for tobacco markets, seem to have been forgotten" (Allendesalazar, 2012, p. 103).

Allendesalazar (2012) lists three major criticisms to this draft: "the goals of the proposal are unclear (…) [and there is a] lack of transparency in the procedure prior to the adoption of the draft" (Allendesalazar, 2012, p. 104); "the CNMC is likely to be less independent" (Allendesalazar, 2012, p. 106); and "the CNMC is bound to be less effective, at least for a certain time" (Allendesalazar, 2012, p. 107).

The author also suggests designing a possible alternative reform, regarding three aspects: reducing the number of NRAs, since, as mentioned above, many regulators had been recently created and had "not yet started to work effectively" (Allendesalazar, 2012, p. 107) and there are many advantages to multi-industry regulators (Allendesalazar, 2012), such as "sharing resources; facilitating learning across industries; reducing the risk of industry and political capture; reducing the risk of economic distortion among competing industries; and dealing with blurring industry boundaries" (Allendesalazar, 2012, p. 108); keeping the national competition authority and sectoral regulators as "separate but complementary agencies" (Allendesalazar, 2012, p. 109); and handling changes with caution, since the creation of a multi-sectoral regulator from scratch "is usually easier than merging pre-existing agencies" (Allendesalazar, 2012, p. 110). So, "any decision to merge should provide for a smooth transition to avoid the welfare cost of a regulatory lag" (Allendesalazar, 2012, p. 110).

Finally, the author specifies that because of "the numerous criticisms and comments to the initial draft, the Government (…) decided to introduce some important modifications (…) to try to tackle these reproaches, particularly those expressed by the European Commission"[8] (Allendesalazar, 2012, p. 110).

3.3 Access Regulation in the Telecommunications Sector

The telecommunications sector is "a great example of regulation and competition working hand in hand" (Almunia, 2010, p. 5), since there are, in fact, barriers to competition (OECD, 2016) and "regulation has been a necessary complement to competition enforcement" (Almunia, 2010, p. 5). The main barrier to competition in network industries, such as telecommunications, is their reliance on "facilities that are not easy or economic to duplicate" (OECD, 2016, p. 60). For that reason, "access regulation, i.e., the requirement for the firms that own essential facilities to provide access to other firms at a regulated price" (Lestage and Flacher, 2014, p. 569) is essential for promoting competition (Lestage and Flacher, 2014) and efficiency and, thereby, enhancing social welfare in network industries (Grajek and Röller, 2012).

Access Regulation and Investment

Lestage and Flacher (2014) "compare the optimal access regulation under three different market configurations that approximate the different stages of telecommunications market liberalization" (Lestage and Flacher, 2014, p. 569). This approach, known as 'ladder of investment', was first introduced by Cave (2006).

In the first stage, the entrants cannot build their own facilities and "only an incumbent may invest in a new infrastructure" (Lestage and Flacher, 2014, p. 569), which means that, when balancing static efficiency and investment, the regulator may determine that the optimal access price is above marginal cost (Lestage and Flacher, 2014). In the second stage, entrants can either access the existing infrastructure or build their own (Lestage and Flacher, 2014) and, therefore, there are two possible outcomes. On the one hand, when "entrants tend to underinvest, the optimal access price balances between static

[8] For more information on these modifications, consult the postscript of Allendesalazar (2012).

efficiency and investment" (Lestage and Flacher, 2014, p. 576). On the contrary, when entrants overinvest, the optimal access price should be set as low as possible, to minimize infrastructure duplication (Lestage and Flacher, 2014). To explain these results, the authors argue that a low access price will "strengthen competition between Internet service providers, which in turn improves welfare" (Lestage and Flacher, 2014, p. 570), but it will also reduce the firms' incentives to invest, which could increase or decrease welfare, depending on the level of investment of the Internet service providers (Lestage and Flacher, 2014).

Finally, in the third stage, "both incumbents and entrants may invest, and access regulation affects both the incentives to build new infrastructures and the incentives to duplicate these infrastructures" (Lestage and Flacher, 2014, p. 576). Therefore, if the regulator decides to promote infrastructure duplication, the access price will be set above the one observed in the first stage, regardless of the level of investment of the Internet service providers (Lestage and Flacher, 2014). This happens because "the access price may at the same time induce more duplication and reduce overinvestment, (…) [since] it increases both the private and the social incentives for infrastructure duplication" (Lestage and Flacher, 2014, p. 570).

Lestage and Flacher (2014) conclude that this model demonstrates the difficulty of access regulation, especially when Internet service providers tend to overinvest (Lestage and Flacher, 2014). When that is the case, "regulatory authorities face a dilemma: on the one hand, high access prices would foster investment in new infrastructures but also encourage wasteful duplication; on the other hand, low access prices would limit infrastructure duplication but would also discourage ISPs [Internet Service Providers] from rolling out new infrastructures" (Lestage and Flacher, 2014, p. 576).

Similarly, Manenti and Scialà (2013) present "a model of competition between an incumbent and an entrant firm in telecommunications (Manenti and Scialà, 2013), where the entrant can decide whether to invest in its own infrastructure before entering the market and, "in case of facility based entry, the entrant has also the option to invest in the provision of enhanced services" [9] (Manenti and Scialà, 2013, p. 450). The incumbent, on

[9] Facilities-based competition describes the situation where "entrants invest in their own infrastructure" (Grajek and Röller, 2012, p. 190), as opposed to services-based competition, where "entrants rely on regulated access to incumbents' infrastructure" (Grajek and Röller, 2012, p. 190).

the other hand, can always choose to update its network to provide advanced services (Manenti and Scialà, 2013), regardless of the option chosen by the entrant.

The authors "study the impact of access regulation on the type of entry (service based vs facility based) and on the amount of [firms'] investments in advanced communications services" (Manenti and Scialà, 2013, p. 464) and conclude that, when the access price is not regulated, it is optimal for the incumbent "to foreclose service based entry by fixing a sufficiently high access price" (Manenti and Scialà, 2013, p. 464), which will generate a socially inefficient outcome (Manenti and Scialà, 2013). This result is consistent with the existing literature, since Sarmento and Brandão (2007) state that "without access price regulation the upstream monopolist might use its market power to foreclose its downstream rivals" (Sarmento and Brandão, 2007, p. 236).

But, when the access price is regulated, welfare enhancing investments may be discouraged, which will also lead to a socially inefficient outcome (Manenti and Scialà, 2013).

Moreover, the authors state that when the access price is regulated after the firms invest in advanced services, regulatory failures can arise (Manenti and Scialà, 2013, p. 465), since "access regulation promotes service based entry (…) [even] when facility based entry would be socially desirable (and it would actually emerge at the equilibrium without regulation)" (Manenti and Scialà, 2013, p. 465). On the other hand, when the access price is regulated before the firms invest, "regulatory failures can be reduced but not eliminated" (Manenti and Scialà, 2013, p. 465).

Therefore, although it aims to promote competition, it is also important to consider the impact of access regulation on investment, as "maintaining and developing network industries call for large capital expenditures" (Lestage and Flacher, 2014, p. 569) and, if firms are required to share their infrastructures with competitors, their incentives to invest may be significantly reduced (Lestage and Flacher, 2014, p. 569). Lestage and Flacher also explain that "in telecommunications, it is often argued that although local loop unbundling is required to avoid remonopolization, the access price should be high enough to preserve the incentives to build next generation networks" (Lestage and Flacher, 2014, p. 569).

Kim et al. (2011) study "the effects of MVNO [mobile virtual network operators] entry and access regulation on the investment behavior of MNOs [mobile network operators, using] (…) firm-level data for 58 MNOs in 21 OECD countries during 2000–2008 (…) [and] suggest that mandated provision of access is related to lower investment intensity of MNOs, while voluntary access provision has no effect" (Kim et al., 2011, p. 907). The lower investment intensity observed when mandatory access provision exists is possibly explained by the adjustments in the investment levels MNOs may be forced to incur because of regulation and entry by MVNOs (Kim et al., 2011). Therefore, the second option is preferable than the first and "prevails in more and more countries" (Kim et al., 2011, p. 916). The authors also note that "the countries that have allowed MVNOs in the market are mostly in Europe, (…) [but] the experience of these countries provides lessons for those countries contemplating granting access to MVNOs" (Kim et al., 2011, p. 908). These results are in accordance with the ones obtained by Grajek and Röller (2012), who demonstrate that access regulation has "a negative effect on both total industry and individual carrier investment" (Grajek and Röller, 2012, p. 189). The authors also specify that, by allowing a relatively easy access to the incumbent's infrastructure, the incumbent's incentives to invest in the improvement of its infrastructure might be undermined, much like the entrants' incentives to invest in their own infrastructure, "even as entrants' total investment increases" (Grajek and Röller, 2012, p. 192). This happens because "access regulation reduces barriers to entry, (…) [as] entrants do not need to duplicate the existing network, but it also reduces incentives to build new infrastructure (…) [since it] can be rented from incumbents at mandated prices" (Grajek and Röller, 2012, p. 190). The concept of facilities-based competition reflects this trade-off and, although it is suggested that easy access will narrow the incentives for entrants to invest under this type of competition, the same conclusion might not be applicable to their incentives to invest in upgrading the incumbent's infrastructure, since, if the entrants intend to provide a broader service than the incumbent, they will need further investments in infrastructures (Grajek and Röller, 2012, p. 190). On the contrary, entrants' investment has a positive effect on incumbent's investment, since "incumbents invest more as entrants' total investment increases" (Grajek and Röller, 2012, p. 192).

The authors conclude that their results "are consistent with the view that the regulatory framework in Europe fails to deliver effective incentives to move toward facilities-based competition" (Grajek and Röller, 2012, p. 211) in the telecommunications sector. They also suggest that "the regulatory environment in Europe is subject to a regulatory

commitment problem" (Grajek and Röller, 2012, p. 211), because, while entrants' investment does not affect access regulation, an increase in the incumbent's investment in infrastructures will prompt the regulator to provide easier access, which will undermine the incumbent's incentives to invest in infrastructures (Grajek and Röller, 2012).
On the other hand, the results obtained by Garrone and Zaccagnino (2015) "support the view that competition does not depress investments at firm and country levels" (Garrone and Zaccagnino, 2015, p. 388).

Access and Interconnections between Networks

The matter of access and interconnections between networks is also very important in the telecommunications sector since, because of competition, this sector consists of a multitude of networks or partial networks, owned by many telecommunications services providers (Vogelsang, 2003).
Vogelsang (2003) describes interconnection as the situation where "two networks are linked to provide call origination, transit, and termination for each other, and the networks operate at the same level of network hierarchy" (Vogelsang, 2003, p. 830) and access as the "cases where the networks operate at different hierarchical levels and only one network uses the other to originate or terminate calls" (Vogelsang, 2003, p. 830). Access and interconnection allow all the telecommunications service providers, except for private networks, to create a "network of networks" (Vogelsang, 2003, p. 830), where they can access other firms' networks or interconnect with each other (Vogelsang, 2003), and without them, "such networks – and competition between them – would hardly have spread so quickly" (Vogelsang, 2003, p. 830).
There are several advantages to access and interconnections for consumers and the competitive process: they allow consumers "to call anybody and be called by anybody (the any-to-any principle) without having to sign up with a system-wide network monopolist" (Vogelsang, 2003, p. 830), and, since entrants are not required to invest in full-coverage networks, this will help reduce the barriers to entry and, consequently, market power (Vogelsang, 2003). Therefore, they are "indispensable for the functioning of a competitive telecommunications market" (Vogelsang, 2003, p. 830). On the other hand, they also have disadvantages, since there is an incentive for collusion, when the competing networks that interconnect are sufficiently symmetric (Vogelsang, 2003); and

“the originally dominating network providers have few incentives to give competitors access to their facilities, especially to those that are hard or impossible to duplicate” (Vogelsang, 2003, pp. 830-831). Therefore, regulating access and interconnection prices in the telecommunications sector is of major importance (Vogelsang, 2003, p. 831) and requires a very technical and deep knowledge of the sector, which favours sectoral regulators over competition authorities (Vogelsang, 2003). However, “as telecommunications competition matures, many of the technical problems will have been solved routinely, so that competition policy can take over” (Vogelsang, 2003, p. 859).

Policy Issues Regarding Telecommunications

More recently, Vogelsang (2014) describes the current telecommunications policies followed in the USA and the EU, and studies whether these policies are likely to converge in the future. Given the purpose of this study, its focus will be the EU policy.

The author explains that “three comparatively new technology and market trends are determining the current and future telecommunications policies in both the U.S. and the EU” (Vogelsang, 2014, p. 3): “digital convergence of telecommunications networks, the spread of next generation access (NGA) networks and the rise of high-speed mobile networks (4G/LTE)” (Vogelsang, 2014, p. 3). The impact of these new technologies and trends on policies and the speed of their development “will depend on (…) institutional, geographic, network-related and market factors” (Vogelsang, 2014, p. 3).

First, the institutional factors comprise “the legal and political environment” (Vogelsang, 2014, p. 1). In the European Union, most telephone networks are currently privatized, although they “were until about two decades ago owned by PTTs [(Post, Telephone, and Telegraph)] and (…) part of ministries” (Vogelsang, 2014, p. 2). Vogelsang adds that, although privatization was difficult to accomplish, it created the opportunity to establish new institutions and regulatory rules (Vogelsang, 2014). Second, geographic factors comprise “general population densities and the degree of urbanization, which determine network densities and thereby the costs per user” (Vogelsang, 2014, p. 2). Third, network-related factors comprehend “technical differences of legacy networks [that] can derive from different architectures used in building the original infrastructure” (Vogelsang, 2014, p. 2), since each European country developed its own telephone network independently and with significant differences from the remaining countries, and by following different approaches, for example, regarding cable TV networks (Vogelsang, 2014). Finally, market factors "depend on the types of users (…) and structure and types of suppliers, including the degree of vertical and horizontal integration" (Vogelsang, 2014, p. 3).

In the European Union, regulation in the telecommunications sector "was always seen as a transitory move between privatization and competition policy" (Vogelsang, 2014, p. 6). Besides, since competition policy has increasingly become more regulatory, this movement from sectoral regulation to competition policy "appears to be smaller today than in the past (Vogelsang, 2014, p. 6). Moreover, regulators have also started to concern about protecting competition, alongside with consumer protection (Vogelsang, 2014). Finally, the author explains that the European Union actively supports the consolidation of carriers, since there are no mobile or fixed networks "even close to covering half of the EU" (Vogelsang, 2014, p. 6) and the majority of countries still have a dominant fixed and cable network firm (Vogelsang, 2014, p. 6).

Vogelsang (2014) analyses five policy issues: "interconnection/termination monopoly, local access bottleneck, net neutrality, spectrum management, and universal service" (Vogelsang, 2014, p. 3). The first issue, interconnection/termination between telecommunications networks, "has been both the basis for network competition and the source of positive externalities for telecommunications users" (Vogelsang, 2014, p. 8), as demonstrated in the author's previous work (Vogelsang, 2003). Apart from some countries where the networks do not charge each other for terminating incoming traffic, telephone and mobile networks usually pay a termination charge, which is the price for the termination of calls that originate in their network and terminate in the others' (Vogelsang, 2014). If these payments are not regulated, they can become an important source of income to the firms and a mean for larger networks to raise the smaller rivals' costs, which is a significant policy issue (Vogelsang, 2014). The author points out two major differences between fixed and mobile termination charges in the EU. First, while "termination charges in fixed networks (fixed-to-fixed = FTF and mobile-to-fixed = MTF) have been regulated since the beginning of liberalization" (Vogelsang, 2014, p. 8), mainly based on LRAIC (Long–Run Average Incremental Costs), "termination in mobile networks (mobile-to-mobile = MTM and fixed-to-mobile = FTM) has in many EU countries only been regulated for the last ten years because of the long-time held mistaken belief that competition between mobile carriers would keep mobile termination charges down" (Vogelsang, 2014, p. 8). Second, "mobile termination costs were deemed substantially higher than fixed termination costs, (…) [although] unregulated mobile termination charges were still substantially above those higher costs" (Vogelsang, 2014, p. 8). Vogelsang (2014) also states that, over the last years, the EU has been furtherly moving from a LRAIC approach to a "pure LRIC" [(Long–Run Incremental Costs[10])] one as "the basis for mobile termination charges" (Vogelsang, 2014, p. 8), which has resulted in its substantial reduction "(and a lesser reduction for fixed termination)" (Vogelsang, 2014, p. 8).

Regarding local access bottlenecks, regulation of wholesale access charges in the EU has followed, in most cases, the LRAIC approach (Vogelsang, 2014), while, although next generation access [NGA] is mandatory, its charges are not regulated (Vogelsang, 2014). The author also explains that "the emphasis on infrastructure investment in NGA has led to softer regulation of copper and NGA access (…) [, leaving] the door open for more stringent regulation if inter-modal competition and the competition from copper access prove to be insufficient" (Vogelsang, 2014, p. 16).

The definition of net neutrality[11] has evolved among the economists from its original definition into a "differentiated policy issue, consisting of a zero price rule (…) [that] would disallow termination fees for the access of content service providers (CSPs) to end-users" (Vogelsang, 2014, p. 17) and "a non-discrimination rule (…) [that] meant no quality of service (QoS) differentiation, no degradation of traffic, blocking, throttling (vertical foreclosure) and no exclusive contracts" (Vogelsang, 2014, p. 17). In the European Union, the European Parliament has recently approved net neutrality regulations that are much more severe than the policy that had been in place since 2009, "which required transparency and allowed NRAs to impose minimum QoS standards"

[10] LRIC (Long-Run Incremental Costs) "are all costs that are associated *only* with the production of a specific service (…) [and that] a producer would avoid if a specific product (or some other increment) would no longer be produced. Therefore, incremental costs also include the fixed costs which are specific to the particular increment under consideration (e.g., a particular service)" (Dewenter and Haucap, 2007, p. 13).

[11] According to the European Parliament, "the principle of "net neutrality" in the open internet means that traffic should be treated equally, without discrimination, restriction or interference, independent of the sender, receiver, type, content, device, service or application" (Position of The European Parliament, adopted at first reading on 3 April 2014).

(Vogelsang, 2014, p. 18), although these policies are still "a work in progress" (Vogelsang, 2014, p. 23).

Spectrum policies aim "to maximize the economic value of spectrum use" (Vogelsang, 2014, p. 23). The European Commission is "taking initiatives for international coordination of spectrum policies and spectrum allocations" (Vogelsang, 2014, p. 26), which is especially important, considering "the small size of European countries and the amount of spectrum held unused in order to avoid interference across borders" (Vogelsang, 2014, p. 26). This happens because the spectrum ownership is geographically fragmented (Vogelsang, 2014), since "spectrum licenses in the EU generally cover a whole member state, but contiguous licenses for all member states currently are almost impossible to accumulate" (Vogelsang, 2014, pp. 26-27), which hinders "the creation of international fully integrated carriers" (Vogelsang, 2014, pp. 26-27) and explains the existence of important policy issues that result from the lack of integration, such as international roaming inside the EU (Vogelsang, 2014). So, even though "there is a move towards spectrum harmonization in the EU, (…) convergence of policies within the EU could take quite a long time" (Vogelsang, 2014, p. 27).

Finally, universal service can be narrowly interpreted has "the connectivity of the poor and high-cost areas to traditional networks (…) to achieve 100% telephone penetration" (Vogelsang, 2014, p. 27). Its traditional policies include direct subsidies and cross subsidies "(from business to residential, from long-distance to local and from urban to rural)" (Vogelsang, 2014, p. 27), although the tendency has been to avoid the second instrument (Vogelsang, 2014). On the other hand, "a broad interpretation of universal service also includes policies that increase the desired penetration of advanced services (NGA)" (Vogelsang, 2014, p. 28), as it happens with the EU digital agenda[12] (Vogelsang, 2014). Besides, "any new definition of universal service has to take into consideration the move from telephony to broadband and from fixed to mobile networks" (Vogelsang, 2014, p. 28).

Vogelsang (2014) also states that the European universal service policies are usually less severe, when compared to US policies and, therefore, will potentially lead to less distortions (Vogelsang, 2014). In Germany, for example, "universal service policy only

[12] For more information on the EU digital agenda, consult the European Commission website, at https://ec.europa.eu/digital-single-market/en.

becomes effective if the policy goals are not achieved through competition, respectively by the universal service provider [and] so far regulatory intervention has never become necessary" (Vogelsang, 2014, p. 29). Besides, apart from "some funding mechanisms in the U.K. (…), France and Italy, the EU has little to show under the narrow interpretation of universal service policies" (Vogelsang, 2014, p. 29). On the other hand, when considering a broad interpretation of universal service policies, the movement towards subsidizing the development of NGA in low density areas is expected to continue (Vogelsang, 2014).

Access Regulation and Innovation

The telecommunications sector is also characterized by constant innovation and emergence of new technologies, products, and services, which can also be a concerning matter to both competition and regulation, as it happens, for example, with telecommunication "bundles that include voice, data and subscription television services" (Pereira and Vareda, 2013, p. 530), which have an increasing substantial importance in the telecommunications industry, caused by changes in the consumer behaviour (Pereira and Vareda, 2013, p. 530), characterized by "a growing interest in buying these services jointly from one supplier, instead of buying them separately from different suppliers" (Pereira and Vareda, 2013, p. 530).

Pereira and Vareda (2013) discuss two problems brought up by technological innovation and changes in the consumer behaviour for competition and regulation, regarding the appearance of bundles of services: "the impact of bundles on product market definition" (Pereira and Vareda, 2013, p. 530) and "the impact of bundles on the emphasis of regulatory policy" (Pereira and Vareda, 2013, p. 531).

Regarding the first problem, the authors argue that "with the growing importance of bundles in the telecommunications industry, the traditional relevant markets for each of the individual services may have to give place to relevant markets for bundles" (Pereira and Vareda, 2013, p. 531), which creates difficulties for product market definition and analysis (Pereira and Vareda, 2013). Nevertheless, they also argue that "the traditional tools of competition policy (…) can be adjusted to deal with these new circumstances" (Pereira and Vareda, 2013, p. 538).

The second problem is related to the growing importance of “bundles that include subscription television services, (…) making access to content essential” (Pereira and Vareda, 2013, p. 538), and to the progress and innovations mentioned above, that “may require some changes in regulatory policy” (Pereira and Vareda, 2013, p. 531). The authors discuss that, considering the increasing importance of these bundles, “the ability to offer television content is becoming indispensable, and there is the risk that vertically integrated firms may foreclose the wholesale market for content” (Pereira and Vareda, 2013, p. 531). However, technological progress allows other types of firms, such as cable television firms, to offer voice and data services (Pereira and Vareda, 2013), which will reduce the need for “access to the incumbent’s fixed telecommunications network services” (Pereira and Vareda, 2013, p. 531). It is also likely that, in the future, mobile services will become an indispensable part of telecommunications services bundles and, therefore, wholesale mobile services access will also be important (Pereira and Vareda, 2013, p. 531).

Finally, Pereira and Vareda explain that “in the recent past, regulatory policy in the telecommunications industry, particularly in the EU, focused on guaranteeing access to fixed telecommunications network services” (Pereira and Vareda, 2013, p. 531) and suggest that the changes described above require a change of the attention of regulatory policy, from ensuring fixed telecommunications network services access, to television content access.

The analysis of the relationship between regulation, competition and innovation in the telecommunications sector is of extreme importance, since innovations in this sector stimulate “innovations throughout the economy” (Vogelsang, 2016, p. 2).

Vogelsang (2016) states that there seems to be some tension between competition, regulation, and innovation, even though innovation, alongside with enabling competition, is now considered one of the major goals of regulatory policy. Regarding the relationship between competition and innovation, the literature supports the inverted “U” position of the effects of competition on innovation, which means that the existence of a certain level of competition is beneficial for innovation (Vogelsang, 2016), while regulation and innovation are considered mutual “enemies” (Vogelsang, 2016). On the one hand, regulation restrains or delays investments in innovative technologies, for example, by not allowing an appropriate rate of return for the new services (Vogelsang, 2016). On the other hand, innovation "destroys (cross-subsidized) regulatory price structures or regulatory entry barriers" (Vogelsang, 2016, p. 2), as happened with Uber and taxi regulation (Vogelsang, 2016). Furthermore, despite this shift in the goals of regulatory policy, "the empirical evidence on innovative effects of regulation in the telecommunications sector is largely negative (…) [and] it appears that more regulation would lead to less innovation" (Vogelsang, 2016, p. 2).

Vogelsang (2016) presents "two main reasons for potential conflicts between regulation and innovation" (Vogelsang, 2016, p. 2): the consumer protection issue, or the pricing/profit reason, and the political economy reason (Vogelsang, 2016). The first issue "means that innovation incentives may require larger profit opportunities than regulators can grant or want to grant" (Vogelsang, 2016, p. 2). The second reason "means that entrenched regulation of a legacy industry conflicts with helping create a new industry that may or may not be regulated (…) [, which] creates a bias against innovation" (Vogelsang, 2016, p. 2).

The author also specifies that "a very simple model shows that a comparison of innovation incentives in such an unregulated industry with a regulated one leads to ambiguous results (…) [, but] the prospect of converting a regulated industry into an unregulated one after the innovation has occurred will unambiguously increase innovation incentives" (Vogelsang, 2016, p. 1), meaning that regulators should commit not regulate the new services, if their goal is to increase innovation (Vogelsang, 2016, p. 10).

3.3.1 The Telefónica Case

The Telefónica case (Case COMP/38.784 – Wanadoo España v Telefónica) is a very important reference in the study of the relationship between competition authorities and sectoral regulators in the telecommunications sector, particularly regarding access regulation, as it suggests the existence of "institutional conflicts between the Commission and national regulators" (Hou, 2015, p. 995).

The Procedure

This procedure began on 11 July 2003, when France Telecom España S.A. (hereafter referred to as "France Telecom") submitted to the Commission a complaint against Telefónica S.A. (hereafter referred to as "Telefónica"), whose main objection was that “the margin between the wholesale prices Telefónica’s subsidiaries charge[d] its competitors for wholesale broadband access in Spain and the retail prices they charge[d] end-users (…) [was] not sufficient to enable Telefónica’s competitors to compete with it to provide end-user broadband internet access” (Case COMP/38.784 – Wanadoo España v Telefónica, p. 7). This shows, as described in section 3.1, that in the case of competition policy, private parties play an important role as a trigger, since this complaint by France Telecom was in the origin of the Commissions’ investigation (Case COMP/38.784 – Wanadoo España v Telefónica).

France Telecom España S.A. is “a fixed and mobile telecommunications operator in Spain (…) 100% owned by the French incumbent for telecommunications services France Telecom” (Case COMP/38.784 – Wanadoo España v Telefónica, p. 6). Eresmas Interactiva S.A. (or “eresMas”), an ISP and portal provider in Spain, was acquired by the France Telecom group in 2002 and, in the last quarter of the same year, it merged with Wanadoo España S.L. (Case COMP/38.784 – Wanadoo España v Telefónica).

Telefónica, “the largest telecommunications company in Spain, (…) [with] leadership positions in almost all the telecommunications markets” (Case COMP/38.784 – Wanadoo España v Telefónica, p. 5) had, “in 2005, (…) a market share (in terms of revenue) of 78.6% for fixed telephony and 52% for mobile telephony” (Case COMP/38.784 – Wanadoo España v Telefónica, p. 5).

On 20 February 2006, after thoroughly investigating the complaint and obtaining additional information, the Commission sent a Statement of Objections (SO) to Telefónica, which “focussed on unfair pricing contrary to Article 82 of the EC Treaty [(Article 102 of TFEU)] and, (…) particular[ly], on margin squeeze practices” (Case COMP/38.784 – Wanadoo España v Telefónica, p. 7). Telefónica was given the opportunity to comment on the preliminary findings of facts and law described in the SO, to which it responded on 19 May 2006 (Case COMP/38.784 – Wanadoo España v Telefónica). Several companies and associations of companies, as Telefonica’s main rivals, were introduced as interested third parties throughout the procedure, including, among others, Tele2, ONO, Jazztel and Astel (Case COMP/38.784 – Wanadoo España v Telefónica). On 12 and 13 June 2006, an Oral Hearing at Telefónica’s request took place, and “Telefónica, the complainant and interested third parties were given the opportunity to be heard and comment on the issues raised by the Commission in its SO” (Case

COMP/38.784 – Wanadoo España v Telefónica, p. 7). After additional "requests for further information to Telefónica" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 7), the Commission sent a letter to Telefónica on 11 January 2007, with the purpose of "inviting it to provide comments on the conclusions the Commission intended to draw (…) [based] on new facts not mentioned in the SO" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 7), to which Telefónica replied, on 12 February 2007 (Case COMP/38.784 – Wanadoo España v Telefónica). Finally, on 4 July 2007, the Commission adopted a decision regarding this case (Case COMP/38.784 – Wanadoo España v Telefónica).

Broadband Internet Access

Broadband Internet access "is a key element of the information society" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 3), and it "can be provided over various technological platforms: DSL (Digital Subscriber Line), cable" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 9), and other technologies, that "still represent less than 0.1% of all broadband lines in Spain" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 11).

ADSL, or Asymmetric Digital Subscriber Line, is a DSL-based technology (Case COMP/38.784 – Wanadoo España v Telefónica) "which provides high-speed internet access using a telephone line" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 3) and currently the prevailing broadband internet provision technology for residential customers in several Member States, including Spain (Case COMP/38.784 – Wanadoo España v Telefónica), "followed by cable-modem (21% of broadband connections)" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 9). On the one hand, Telefónica, the incumbent, is the only telecommunications operator with a nation-wide fixed telephone network in Spain (Case COMP/38.784 – Wanadoo España v Telefónica). On the other hand, while the network inherited from the former monopoly allows ADSL technology to be homogeneously available in all the Spanish territory, cable-modem technology is heterogeneously available throughout Spain, and only 40% of its population can get broadband access using this technology, due to the obstacles that cable operators had to overcome to build their networks (Case COMP/38.784 – Wanadoo España v Telefónica).

It is also important to notice that “the Spanish retail broadband internet access market is characterised by the large number of promotions (mainly regarding the connection fee, the equipment, free or reduced-monthly subscriptions, and sometimes promotional gifts that apparently bear no direct relationship with the contracted broadband product) proposed by Telefónica and its competitors to attract new subscribers (…) [, which] have in fact been a key competition tool between operators in the retail market” (Case COMP/38.784 – Wanadoo España v Telefónica, p. 18). Besides, the emergence of bundles that include voice and Internet (“double play” offers), and television (“triple play” offers) (Case COMP/38.784 – Wanadoo España v Telefónica) has been an important development in the telecommunications industry (Pereira and Vareda, 2013) for Telefónica and its competitors (Case COMP/38.784 – Wanadoo España v Telefónica). Although these “offers have (…) been at the core of the cable operators' attempts to enter and expand in the broadband internet access market” (Case COMP/38.784 – Wanadoo España v Telefónica, p. 18), these operators still lost market share during the period under investigation (Case COMP/38.784 – Wanadoo España v Telefónica).

This means that, if Telefonica’s competitors wish to provide broadband internet access to consumers, they have two options: build their own local access network, which would require large investments and time and is, therefore, not economically viable (Case COMP/38.784 – Wanadoo España v Telefónica); or, “they can contract wholesale broadband access” (Case COMP/38.784 – Wanadoo España v Telefónica, p. 3). Regarding wholesale broadband access, there are three types of services available to Telefónica’s competitors: two of them (the provision of wholesale access at local level and at regional level) are exclusively provided by Telefónica, while the other (several national wholesale offers) can be provided by either Telefónica or its competing operators (Case COMP/38.784 – Wanadoo España v Telefónica). Nevertheless, these competing operators still depend upon Telefónica’s inputs to be able to supply this service, since TESAU (Telefónica de España, S.A.U, a subsidiary of Telefónica S.A.) “is the only operator having a local access network (i.e. access to most Spanish households and businesses) in the entire Spanish territory” (Case COMP/38.784 – Wanadoo España v Telefónica, p. 19). Therefore, no matter the alternative chosen, Telefonica’s competitors will always be dependent on TESAU’s local access network when they contract a wholesale ADSL service available on the market (Case COMP/38.784 – Wanadoo España v Telefónica).

On the other hand, cable operators do not rely on Telefonica's network to provide retail broadband services but, at the same time, they have not exercised enough pressure on Telefónica's prices at the retail level (Case COMP/38.784 – Wanadoo España v Telefónica).

Therefore, it is possible to conclude that Telefónica "has been in a position to control and influence market prices, output, innovation, variety and the quality of services on the market for a significant period" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 3).

Relevant Markets and Dominance

In its analysis, the Commission identified three relevant markets, one at the retail level and two at the wholesale broadband access level. The relevant retail market includes all standard broadband products, regardless of the technology used to provide it (ADSL, etc.), "marketed in the "mass market" for both residential and non-residential users" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 3). The relevant wholesale broadband access markets consist on the regional wholesale broadband market and the national wholesale broadband market and they both exclude all wholesale access services provided through any technology, other than ADSL (Case COMP/38.784 – Wanadoo España v Telefónica). Moreover, the relevant geographic market in all cases is the Spanish market, "as also stated by the CMT on various occasions" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 60). The Commission also states that "dominant position" can be defined, as specified by the Court of Justice, as "a position of economic strength enjoyed by an undertaking which enables it to prevent effective competition being maintained on the relevant market by giving it the power to behave to an appreciable extent independently of its competitors, customers and ultimately of its consumers" (Case C–27/76 - United Brands and Others v Commission, 1978) (apud Case COMP/38.784 – Wanadoo España v Telefónica, p. 62).

Therefore, the Commission concluded that, during period of the infringement, Telefónica had a dominant position in the three relevant markets described above (Case COMP/38.784 – Wanadoo España v Telefónica).

The Abuse

However, holding a dominant position is not contrary to the competition rules in itself (Case COMP/38.784 – Wanadoo España v Telefónica), but only the abuse of such position or, in other words, when "the behaviour of an undertaking in a dominant position (…) is such as to influence the structure of a market (…) [and] has the effect of hindering the maintenance of the degree of competition still existing in the market or the growth of that competition" (Case 85/76 – Hoffmann-La Roche, 1979) (apud Case COMP/38.784 – Wanadoo España v Telefónica, p. 78). Therefore, since a margin squeeze occurs when the difference between the upstream and the downstream prices is too narrow, there is no need to demonstrate that either the wholesale price or the retail price are excessive in themselves (Case COMP/38.784 – Wanadoo España v Telefónica). In this sense, "the Commission (…) [determined] that the relevant downstream market is the mass market for retail broadband access and the upstream markets are those of (i) wholesale broadband access at regional level and (ii) wholesale broadband access at national level" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 197). The Commission, then, evaluated whether the margin between these prices was "sufficient to cover its downstream incremental costs" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 198) and established that Telefonica's upstream prices at both levels "do not allow an as efficient competitor to replicate (…) [its] prices for retail broadband access since September 2001" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 198). Moreover, the Commission determined that Telefonica's practice was capable and likely to restrict competition in the retail market and also found empirical evidence consistent with the existence of an actual restrictive effect from these practices, which resulted in consumer harm (Case COMP/38.784 – Wanadoo España v Telefónica). When analysing if Telefonica's conduct could be objectively justified or it produced efficiencies (positive effects) that outweighed its negative effects on competition (Case COMP/38.784 – Wanadoo España v Telefónica), the Commission concluded that "there is no objective justification or efficiency defences to Telefónica's behaviour" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 4).

Regulation of the Services Concerned by the Decision

The Commission explains that, under national telecommunications regulation, which is "based on and compatible with Community law" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 82), Telefónica is obliged to supply wholesale access at both levels under fair conditions, since its refusal or its supply under unreasonable terms would harm "the emergence and/or continuation of sustainable competition at the retail level" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 81). This means that "when Telefónica decided to enter the retail broadband market on a mass basis and upgrade its infrastructure, it knew that the obligation to provide regional wholesale access would be maintained" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 86).

The Commission also assessed the type of regulation observed in the three relevant markets mentioned above. First, while TESAU's retail broadband access services prices were subject to regulation from 3 August 2001 to 1 November 2003, the retail prices of the other subsidiaries of Telefónica S.A. were not regulated (Case COMP/38.784 – Wanadoo España v Telefónica). On the one hand, under the Spanish General Telecommunications Law 11/1998, the CDGAE (*Comisión Delegada del Gobierno para Asuntos Económicos*) "had the power to set, on a provisional basis, fixed, minimum and maximum prices, the criteria for their establishment and the mechanisms for their control, (…) [considering] the actual costs of service provision and the level of competition between operators in the market" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 29). On the other hand, "TESAU was obliged to present to the Ministry of Economy and to the Ministry of Science and Technology its proposals for new prices for approval by the CDGAE" (Case COMP/38.784 – Wanadoo España v Telefónica, p. 29). In this context, TESAU proposed its retail prices, which were approved as fixed prices by the CDGAE , on 3 August 2001 (Case COMP/38.784 – Wanadoo España v Telefónica). Nevertheless, given the type of regulation applicable to the retail price, TESAU was always free to propose a new (higher) price for approval by the CDGAE (Case COMP/38.784 – Wanadoo España v Telefónica), but chose not to do it. Finally, the retail prices were liberalized on 1 November 2003, although TESAU was still obligated to communicate any changes in its retail ADSL services prices before their introduction in the market (Case COMP/38.784 – Wanadoo España v Telefónica), or "any changes to the structure of its retail prices, and to propose new corresponding wholesale tariffs" (Case

COMP/38.784 – Wanadoo España v Telefónica, p. 30), according to the relevant wholesale regulation. Second, “the regulation applicable to TESAU's regional wholesale service has only imposed a maximum price level and has been such that TESAU could have decreased at any time the charges for this service on its own initiative” (Case COMP/38.784 – Wanadoo España v Telefónica, p. 36). Third, wholesale services prices were not regulated, which means that Telefonica could have reduced its charges at any time (Case COMP/38.784 – Wanadoo España v Telefónica). The Commission also adds that a retail-minus price regime was implemented regarding the regional wholesale offer by the CMT, before December 2006 (Case COMP/38.784 – Wanadoo España v Telefónica). Under this price regime, “the regulator defines the minimum value of the difference between the retail price and the access price” (Sarmento and Brandão, 2007, p. 237), which corresponds, in this case, to the wholesale access charge.

Conclusion

The Commission found that, from September 2001 to December 2006, Telefónica imposed a margin squeeze between its retail prices and its wholesale access prices, both at regional and national level, which constitutes an abuse of its dominant position (Case COMP/38.784 – Wanadoo España v Telefónica). This does not mean, however, that Telefónica did not engage “in other abusive behaviour in the Spanish broadband markets” (Case COMP/38.784 – Wanadoo España v Telefónica, p. 4). Besides, the existing regulation did not forbid Telefónica to restructure its prices and, therefore, ending the margin squeeze (Case COMP/38.784 – Wanadoo España v Telefónica).

In conclusion, “Telefónica (i.e. the economic entity formed by Telefónica S.A. and (…) [its subsidiaries]) has infringed Article 82 of the EC Treaty [(Article 102 of the TFEU)] by imposing unfair prices on its competitors in the form of a margin squeeze (…), throughout the period from September 2001 to December 2006” (Case COMP/38.784 – Wanadoo España v Telefónica, p. 199) and Telefónica S.A. and Telefónica de España S.A.U were condemned to pay, jointly and severally liable, a fine of 151 875 000 euros (Case COMP/38.784 – Wanadoo España v Telefónica).

Aftermath

After the Commission's decision, Telefónica appealed to the General Court, requesting the annulment of the decision or a reduction of the fine (Case T–336/07), alleging a "breach of the rights of the defence" (Judgement of the General Court of 29 March 2012, Case T-336/07, EU:T:2012:172, paragraph 65) and several errors of fact and law in the Commission's conduct (Case T–336/07), but the General Court dismissed the action and confirmed the Commission's decision. Additionally, the Spanish State also requested the annulment of the decision (Case T–398/07), claiming, among other pleas in law, "an infringement of the duty of sincere cooperation laid down (…) [in the] Framework Directive" (Judgement of the General Court 29 March 2012, Case T-398/07, EU:T:2012:173, paragraph 38). The General Court stated that the CMT was "involved in the administrative proceedings in this case" (Case T–398/07, point 8), since the Commission not only sent three request for information to the regulator, but also kept it informed throughout the process (Case T–398/07). Besides, the fact that the services subject to the Commission's decision were regulated "in accordance with the applicable European directives" (Judgement of the General Court 29 March 2012, Case T-398/07, EU:T:2012:173, paragraph 50) is not relevant, since regulated sectors are still subject to competition law (Case T–398/07). For that reason, the General Court also dismissed this action.

Afterwards, Telefónica appealed the judgment to the Court of Justice (Case C–295/12 P) seeking an annulment of the decision or a reduction of the fine, which was dismissed.

Further Comments

Jones and Sufrin (2016) state that "the decision [in the Telefónica case] is notable for the Commission's careful analysis of Telefónica's costs and of the possible prejudicial effects on consumers (…), using LRAIC as the appropriate standard (Jones and Sufrin, 2016, p. 423).

Hou (2015) studies "the institutional conflicts between SSR [(Sector Specific Regulators)] and EU competition law" (Hou, 2015, p. 981) and considers "three cases [that] suggest three types of institutional conflicts between the Commission and national regulators" (Hou, 2015, p. 995): The Deutsche Telekom case (Case COMP/C-1/37.451, 37.578, 37.579 – Deutsche Telekom AG), the Telefónica case, and the Telekomunikacja

Polska case (Case COMP/39.525 – Telekomunikacja Polska). Regarding the Telefónica case, the author states that even though the Commission recognized the advantage of the retail-minus price regime “in eradicating price squeeze concerns” (Hou, 2015, p. 992), two divergences between the Commission’s vision and the Spanish regulator’s vision can be pointed out (Hou, 2015). On the one hand, when the Commission assesses the existence of a price squeeze through an equally efficient competitor approach, it only considers “whether the wholesale price is (…) [higher] than the retail price minus retail operational costs” (Hou, 2015, pp. 992–993), while the regulator’s retail-minus approach also includes “a reasonable profit margin in Telefonica’s wholesale offer [, making] the regulated wholesale price higher than what was legitimate under EU competition law” (Hou, 2015, pp. 992–993). On the other hand, by taking advantage of the ex post nature of competition enforcement, the Commission’s approach included historical data on the retail operational costs collected during the investigated period, while the Spanish regulated had to implement “a forward-looking analysis on the operational costs in 2001” (Hou, 2015, p. 993), and could only rely upon “inaccurate data (…) for a long time, i.e. about five years” (Hou, 2015, p. 1001). Therefore, even though there are advantages to the retail-minus approach, the use of inaccurate data by the Spanish regulator “led to inefficient regulation” (Hou, 2015, p. 995). Besides, the fact that the national regulator did not realize or correct its mistake during such a long period, hints that it might be captured (Hou, 2015). Moreover, “since the distortion of competition is not merely abstract, the Commission’s intervention gives added value in this case” (Hou, 2015, p. 1001) and “it seems that the Commission can retroactively keep national regulators under check” (Hou, 2015, p. 996).

Another interesting aspect of this case that is usually less noticed is that the “EU competition law was in conflict with two generations of telecom regulatory frameworks” (Hou, 2015, pp. 998–999). This happens because the current regulatory framework only became effective after “the first market review carried out by national regulators” in 2007, instead of 2003, as it originally intended (Hou, 2015). Therefore, even though this decision came out after 2003, the regulatory framework that was in effect was the previous one (from 1998), which “did not establish a good coordination mechanism” (Hou, 2015, p. 999), thus justifying the Commission’s intervention.

Conclusion

The comparison of the characteristics of the type of interventions carried out by competition authorities and sectoral regulators demonstrates that there are many advantages to both authorities, depending on situation. Since overlap and common goals between the two authorities can exist at the same time, it is of extreme importance to study how the interface between competition law and sectoral regulation should be managed (Dabbah, 2011).

Although concurrency is considered the best model by authors like Dabbah (2011), it is not possible to find a single solution that can be applied to all sectors and countries (Marques et al., 2005), since the choice of the model applicable to a certain sector in a certain country should be sensible to several aspects (Dabbah, 2011), such as, for example, the relative advantages of each authority (Marques et al., 2005; Carlton and Picker, 2014), or the characteristics of the country and the sector in question (Marques et al., 2005). Besides, these options are unlikely to be static (Marques et al., 2005), since they depend, among other factors, on the level of effective competition in the sector concerned (Marques et al., 2005). Even so, the interface established for managing the relationship between competition authorities and sectoral regulators in the telecommunications sector could, in the European Commission's vision, "hopefully become a model for other sectors" (DGCEC, 2005, p. 36).

Despite the tendency observed of partial or full deregulation, it is still important that regulation exists when the characteristics of the sector require so (Carlton and Picker, 2014). On the other hand, it is very important to study the relationship between competition, regulation and innovation since innovations in this sector stimulate "innovations throughout the economy" (Vogelsang, 2016, p. 2) and, although the literature is in accordance with the vision that the existence of a certain level of competition is beneficial for innovation (Vogelsang, 2016), regulation can have negative effects on innovation and innovation can have negative effects on regulation (Vogelsang, 2016).

The study of access regulation is of extreme importance because, even though access regulation is essential for promoting competition (Lestage and Flacher, 2014), it can, under certain circumstances, have a negative impact on the levels of investment (Lestage and Flacher, 2014; Manenti and Scialà, 2013; Kim et al., 2011; Grajek and Röller, 2012).

The Telefónica case (Case COMP/38.784 – Wanadoo España v Telefónica) suggests the existence of "institutional conflicts between the Commission and national regulators" (Hou, 2015, p. 995), particularly "a conflict of EU competition law with the 1998 regulatory framework" (Hou, 2015, p. 1004). However, the Commission's actions may be justified, since even though this decision came out after 2003, the regulatory framework that was in effect was the previous one (from 1998), which "did not establish a good coordination mechanism" (Hou, 2015, p. 999) between the two authorities.

A similar study and comparison with other EU cases, such as the Deutsche Telekom and the Telekomunikacja Polska cases, as suggested by Hou (2015), would be important to strengthen this work, and a review on US cases to deepen the investigation on whether the policies followed in the US and the EU are likely to converge in the future, as studied by Vogelsang (2014). On the same line of thought, the consideration of more recent cases could help understand if there are any similar conflicts between the current EU regulatory framework and competition law.

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